No. 9000101

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

AgriPro Biosciences Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'Bergen'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington, D.C. *this* 31st *day of* August *in the year of our Lord one thousand nine hundred and* ninety-two.

Attest:

Kenneth H. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Edward Madigan
Secretary of Agriculture

APPROVAL EXPIRES 4-30-85

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

FORM APPROVED: OMB NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

1. NAME OF APPLICANT(S)
AgriPro Biosciences Inc.

2. TEMPORARY DESIGNATION
HS85-902

3. VARIETY NAME
Bergen

4. ADDRESS *(Street and No. or R.F.D. No., City, State, and Zip Code)*
6700 Antioch
Shawnee Mission, Kansas 66204

5. PHONE *(Include area code)*
913-384-4940 (KS)
303-532-3721 (CO)

FOR OFFICIAL USE ONLY

PVPO NUMBER
9000101

6. GENUS AND SPECIES NAME
Triticum aestivum

7. FAMILY NAME *(Botanical)*
Gramineae

FILING
DATE Feb. 27, 1990
TIME ☐ A.M. ☐ P.M.

8. KIND NAME
Hard Red Spring Wheat

9. DATE OF DETERMINATION
1) 1985
2) 1987

FEES RECEIVED
AMOUNT FOR FILING
$ 2150.00
DATE Feb. 27, 1990
AMOUNT FOR CERTIFICATE
$ 250.00
DATE July 29, 1992

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
Delaware

12. DATE OF INCORPORATION
February 8, 1989

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

R.E. Heiner
6700 Antioch
Shawnee Mission, KS 66204
913-384-4940

C. Bruns or R. Bruns
P.O. Box 30
Berthoud, CO 80513
PHONE *(Include area code)*: 303-532-3721

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

a. [X] Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
b. [X] Exhibit B, Novelty Statement.
c. [X] Exhibit C, Objective Description of Variety *(Request form from Plant Variety Protection Office.)*
d. [X] Exhibit D. Additional Description of Variety.
e. [X] Exhibit E, Statement of the Basis of Applicant's Ownership. Exhibit F. Quality & Agronomic Data

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act.)*
[XX] Yes *(If "Yes," answer items 16 and 17 below)* ☐ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
[X] Yes ☐ No

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
[X] Foundation [X] Registered [X] Certified

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
☐ Yes *(If "Yes," give date)*
[XX] No

19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☐ Yes *(If "Yes," give names of countries and dates)*
[XX] No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT Joe A. Smith — DATE 2-14-90

SIGNATURE OF APPLICANT Robert E Heiner — DATE 2-19-90

FORM WA-470 (7-84) (Edition of 3-84 is obsolete.)

EXHIBIT A.

ORIGIN AND BREEDING HISTORY

Bergen originated from the cross 'MN74103/MN72149//Era/3/Angus' which was made at Berthoud, Colorado in 1979. Selections were made from an F2 population of this cross in Hunter, North Dakota in 1980. These selections were advanced in the greenhouse through the F4 generation by single seed descent. The original bulk was from a single F5 head-row selection made at Climax, Minnesota in 1984. This bulk was entered into yield trials in 1985 under the experimental designation 'HS85-0902'.

Bergen has been yield tested in AgriPro nurseries in the Red River Valley from 1985 to 1987 and 1989. No data were obtained in 1988 due to a severe drought. It has also been tested in the Northern Uniform Regional Nursery in 1988 and 1989. In 1989, it was first entered into State tests in Minnesota and eastern North Dakota.

In 1987, there were 176 head-rows grown in Berthoud, Colorado. 173 head-rows were selected to form a .2 acre increase that was planted the fall of 1987 in New Zealand. This New Zealand increase produced 350 pounds of breeder seed. Production seed fields of Bergen were planted in Colorado both in 1988 (breeder) and 1989 (foundation).

Bergen is uniform and stable. Less than 0.5% of the plants were rogued from the foundation seed increase in 1989. Approximately 90% of these rogued variant plants were eight to ten centimeters taller than Bergen. There were also approximately .01% awnless wheat and spring barley plants discarded from this foundation field. Less than 1% of any type variant plants may be encountered in subsequent generations.

9000101

EXHIBIT B.

NOVELTY STATEMENT

Bergen is most similar to the hard red spring wheat Marshall. However, it can be distinguished by the following morphological characteristics:

- Bergen has a short acuminate beak on the glume. Marshall has a longer type acuminate beak, (see statistical data page 1.)
- Bergen is one day earlier maturing than Marshall, (see Exhibit F. page 3.)

ANOVA TABLE FOR BEAK LENGTH
BERGEN VS. MARSHALL

TOTAL OBSERVATIONS: 50

	BEAK LENGTH
N OF CASES	50
MINIMUM	1.600
MAXIMUM	6.500
MEAN	3.456
STANDARD DEV	1.068

THE FOLLOWING RESULTS ARE FOR BERGEN:

TOTAL OBSERVATIONS: 25

	BEAK LENGTH
N OF CASES	25
MINIMUM	1.600
MAXIMUM	4.500
MEAN	2.664
STANDARD DEV	0.584

THE FOLLOWING RESULTS ARE FOR MARSHALL:

TOTAL OBSERVATIONS: 25

	BEAK LENGTH
N OF CASES	25
MINIMUM	2.500
MAXIMUM	6.500
MEAN	4.248

THE FOLLOWING RESULTS ARE FOR BERGEN VS. MARSHALL:

DEP VAR:BEAKLENG N: 50 MULTIPLE R: 0.749 SQUARED MULTIPLE R: 0.561
ADJUSTED SQUARED MULTIPLE R: 0.552 STANDARD ERROR OF ESTIMATE: 0.714

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	1.080	0.320	0.000	.	3.380	0.001
VAR	1.584	0.202	0.749	.100E+01	7.839	0.000

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	31.363	1	31.363	61.446	0.000
RESIDUAL	24.500	48	0.510		

The difference in means of beak length are significantly different at the 0.000 probability level.

'Bergen'

FORM APPROVED: OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY

WHEAT (*TRITICUM SPP.*)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
AgriPro Biosciences Inc.

ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*)
6700 Antioch
Shawnee Mission
Kansas, 66204

FOR OFFICIAL USE ONLY

PVPO NUMBER
9000101

VARIETY NAME OR TEMPORARY DESIGNATION
BERGEN

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. KIND:
[1] 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:
[1] 1 = SPRING 2 = WINTER 3 = OTHER (*Specify*) _____
[2] 1 = SOFT 2 = HARD 3 = OTHER (*Specify*) _____
[2] 1 = WHITE 2 = RED 3 = OTHER (*Specify*) _____

3. SEASON - NUMBER OF DAYS FROM [illegible] planting TO:
[0][5][2] FIRST FLOWERING
[0][5][7] LAST FLOWERING

4. MATURITY (*50% Flowering*):
[0][1] NO. OF DAYS *EARLIER* THAN .....
[ ][ ] NO. OF DAYS *LATER* THAN .....
[7] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS 7=Marshall

5. PLANT HEIGHT (*From soil level to top of head*):
[0][7][9] CM. HIGH Equal to Marshall
[---][---] CM. TALLER THAN .....
[---][---] CM. SHORTER THAN .....
[---] [---] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS 7=Marshall

6. PLANT COLOR AT BOOTING (*See reverse*):
[2] 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHER COLOR:
[1] 1 = YELLOW 2 = PURPLE

8. STEM:
[1] Anthocyanin: 1 = ABSENT 2 = PRESENT
[2] Waxy bloom: 1 = ABSENT 2 = PRESENT
[2] Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT
[1] Internodes: 1 = HOLLOW 2 = SOLID
[0][5] NO. OF NODES (*Originating from node above ground*)
[1][9] CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:
[2] Anthocyanin: 1 = ABSENT 2 = PRESENT
[2] Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:
[2] Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER (*Specify*): _____
[2] Flag leaf: 1 = NOT TWISTED 2 = TWISTED
[1] Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT
[2] Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT
[1][3] MM. LEAF WIDTH (*First leaf below flag leaf*)
[2][4] CM. LEAF LENGTH (*First leaf below flag leaf*):

FORM LPGS-470-6 (7-81) (Edition of 3-79 may be used)

5

FORM GR-470-6 (REVERSE) 'Bergen'

11. HEAD:

[3] Density: 1 = LAX 2 = DENSE 3=middense

[2] Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER (Specify) _____

[4] Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

[1] Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED 5 = BROWN 6 = BLACK 7 = OTHER (Specify): _____

[7.6] CM. LENGTH [1 1] MM. WIDTH

12. GLUMES AT MATURITY:

[2-3] Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.) 3 = LONG (CA. 9 mm.)

[2] Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.) 3 = WIDE (CA. 4 mm.)

[2] Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE

[3] Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

short ave.2.6mm

13. COLEOPTILE COLOR:

[1] 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

[2] 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

[2] 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

1--[2-3] Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

[1-2] Cheek: 1 = ROUNDED 2 = ANGULAR

[2-3] Brush: 1 = SHORT 2 = MEDIUM 3 = LONG

[2] Brush: 1 = NOT COLLARED 2 = COLLARED

[---] Phenol reaction (See instructions): 1 = IVORY 2 = FAWN 3 = LT. BROWN 4 = BROWN 5 = BLACK

[3] Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) _____

[6.0] MM. LENGTH [3.0] MM. WIDTH [3 5] GM. PER 1000 SEEDS

17. SEED CREASE:

[1] Width: 1 = 60% OR LESS OF KERNEL 'WINOKA' 2 = 80% OR LESS OF KERNEL 'CHRIS' 3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

[1] Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT' 2 = 35% OR LESS OF KERNEL 'CHRIS' 3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) 3=Moderately Susceptible 4=Moderately Resistant

[2] STEM RUST (Races) field races

[4] LEAF RUST (Races) field races

[0] STRIPE RUST (Races) _____

[0] LOOSE SMUT

[0] POWDERY MILDEW

[0] BUNT

[0] OTHER (Specify) _____

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) 3=Moderately Susceptible 4=Moderately Resistant

[0] SAWFLY

[0] APHID (Bydv.)

[0] GREEN BUG

[0] CEREAL LEAF BEETLE

[0] OTHER (Specify) _____

HESSIAN FLY RACES: [0] GP [0] A [0] B [0] C [0] D [0] E [0] F [0] G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Marshall	Seed size	Marshall
Leaf size	Marshall	Seed shape	Marshall
Leaf color	Marshall	Coleoptile elongation	Marshall
Leaf carriage	Marshall	Seedling pigmentation	Marshall

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.T. Briggle and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States. Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

6

EXHIBIT D.

ADDITIONAL DESCRIPTION BERGEN

Bergen is a hard red spring wheat bred and developed by AgriPro Biosciences Inc. Bergen is a very high yielding, strong strawed, semidwarf variety with medium-early maturity. Bergen has good test weight and excellent straw strength. Its maturity is similar to Wheaton. It has excellent protection to leaf and stem rust and the foliar diseases. It has satisfactory overall breadmaking quality with protein levels similar to Marshall.

Bergen will probably be best suited for the high yield areas of the spring wheat region. It is well suited to intensive yield management and direct combining.

Juvenile growth habit is semi-erect. Plant color at boot stage is green. Flag leaf is twisted and drooping. Head shape is strap, middense, awned and white at maturity. Glumes are midlong to long and midwide at maturity with oblique shoulders and short acuminate beaks. Seed shape is elliptical to ovate with rounded to angular cheeks. Seed crease is narrow and shallow. Brush size is midlong to long and midsized.

EXHIBIT E.

STATEMENT IF THE BASIS OF APPLICANT'S OWNERSHIP

AgriPro Biosciences Inc. is the applicant for protection in this case being:

a) The incorporated business (registered in Delaware) for and within which regular employees have bred the named variety.

b) The proprietory owner and intending commercial user of the variety.

EXHIBIT F.

QUALITY AND AGRONOMIC DATA

AGRIPRO WHEAT
HARD RED SPRING WHEAT

YEAR: 1989

YEAR	VARIETY OR LINE	LOC	FLOUR/WHEAT QUALITY: TEST WT	WHT PROT	FLR PROT	R	HRD	FLR YLD	R	ASH	MIXOGRAM: PK TIME	PK HT	TOL	R	BAKING QUALITY: ABS	R	MIX TIME	R	LOAF VOL	R	CRUMB: GR	TX	COL	OVER ALL	CMMT
			lb/Bu	14%mb	14%mb			%			min	N.U.	mm		%		min		cc		R	R	R	R	
89	BERGEN	ST	61.2	14.2	12.6	5	88	73.7	1	.420	4.50	5.0	1057	2	65.0	6	4.50	3	1010	6	3	4	3	44	
89	BERGEN	TM	61.8	14.2	12.8	4	104	72.8	2	.412	5.00	4.8	1282	3	66.0	4	5.00	3	1120	5	3	2	2	38	
89	BERGEN	BP	61.8	14.7	13.4	4	98	70.9	4	.429	4.75	4.8	1028	2	68.0	4	4.75	3	1180	3	3	2	2	36	
89	BERGEN	CX	62.9	13.8	12.6	4	104	70.6	4	.389	5.50	5.0	1419	2	66.0	4	5.50	5	1120	4	3	3	2	41	
87	BERGEN	BP	00.0	12.5	11.0	6	00	70.2	4	.000	4.75	4.5	1375	2	62.0	5	4.75	5	1110	2	3	3	3	44	b
87	BERGEN	CS	58.7	11.5	10.6	6	00	70.9	4	.000	3.25	4.5	1100	4	62.0	5	3.25	3	900	8	4	4	3	56	SSb
87	BERGEN	TM	61.7	12.9	12.1	4	00	72.1	2	.000	4.50	4.7	1540	2	62.0	5	4.50	3	1140	2	3	2	3	34	b
	AVERAGE		61.4	13.4	12.2	5	99	71.6	3	.413	4.61	4.8	1257	2	64.4	5	4.61	4	1083	4	3	3	3	42	
89	LEN	ST	60.9	15.1	13.7	3	93	72.8	2	.428	5.00	5.3	940	3	69.0	2	5.00	3	1120	3	5	3	2	38	
89	LEN	TM	60.9	15.2	13.7	2	83	72.2	2	.476	4.75	5.5	1024	6	69.0	1	4.75	3	1160	4	5	3	2	42	
89	LEN	BP	61.2	15.3	13.9	3	90	72.3	2	.453	4.75	5.3	863	3	70.0	2	4.75	3	1230	2	4	3	2	35	
87	LEN	CX	62.1	14.4	13.2	3	90	71.3	3	.407	5.75	5.8	1307	3	68.0	2	5.75	5	1150	3	3	3	2	37	
87	LEN	BP	00.0	14.3	12.2	3	00	73.3	1	.000	3.00	5.0	1705	1	65.0	2	3.00	3	1050	4	4	3	3	32	
87	LEN	CS	58.8	13.4	12.5	3	00	71.9	3	.000	3.25	5.5	1375	3	65.0	2	3.25	3	1160	2	3	3	3	34	
87	LEN	TM	63.2	14.2	12.8	3	00	71.3	3	.000	3.75	5.5	1430	2	65.0	2	3.75	1	1150	2	5	3	3	34	V
	AVERAGE		61.2	14.6	13.1	3	89	72.2	2	.441	4.32	5.4	1235	3	67.3	2	4.32	3	1146	3	4	3	2	36	
89	WHEATON	ST	60.6	13.5	12.0	6	90	73.9	1	.439	4.00	5.5	884	3	63.0	8	4.00	1	1060	4	2	2	2	40	
89	WHEATON	TM	59.9	14.0	12.6	4	96	70.9	4	.447	4.50	5.3	1147	4	65.0	5	4.50	1	1190	3	3	2	2	39	
89	WHEATON	BP	61.8	14.0	12.8	5	108	71.5	3	.470	3.50	5.5	679	5	67.0	5	3.50	1	1250	2	3	3	2	43	
89	WHEATON	CX	61.4	12.7	11.0	7	101	71.7	3	.394	5.00	5.5	1298	3	64.0	6	5.00	3	1190	3	3	3	2	47	
87	WHEATON	BP	00.0	12.3	10.6	6	00	73.7	1	.000	3.50	5.0	1155	3	63.0	4	3.50	1	1030	4	4	3	3	42	
87	WHEATON	CS	58.8	12.6	11.5	5	00	72.6	2	.000	3.50	5.0	1210	4	63.0	4	3.50	1	1100	3	3	4	3	42	
87	WHEATON	TM	61.8	12.3	10.6	7	00	71.9	3	.000	3.50	5.0	1265	3	63.0	4	3.50	1	1190	1	5	3	3	45	V
	AVERAGE		60.7	13.1	11.6	6	99	72.3	2	.438	3.93	5.3	1091	4	64.0	5	3.93	1	1144	3	3	3	2	43	

Q1

STEM AND LEAF RUST RATINGS
CEREAL RUST NURSERY* 1988-1989

VARIETY	STEM RUST 1988	STEM RUST 1989	LEAF RUST 1989
Butte 86	TR	TR	60S
Stoa	TR	TR	60MR-MS
Era	TR	0	5R-MR
Bergen	TR	5R-MR	10MR-MS

*St. Paul, MN - Uniform Regional Reports

SPRING WHEAT TRIAL SUMMARIES

OVER LOCATIONS--OVER YEARS

VARIETY OR LINE: BERGEN VERSUS MARSHALL

State	YIELD OVER YEARS bu/a Bergen	bu/a Marsh	# Loc
MN	58.1	55.3	11
ND	58.4	54.6	9
SD	40.3	37.8	1

State	TEST WT. OVER YEARS lbs/bu Bergen	lbs/bu Marsh	# Loc
MN	59.0	59.2	9
ND	59.2	58.8	7
SD	57.7	57.7	1

OVER LOCATION/YEARS

VARIETY	# Loc	Yield	# Loc	Ave TW	# Loc	Ave Ht cm	# Loc	Ave Hd days
Bergen	21	57.4	17	59.0	16	69.6	21	56.3
Marshall	21	54.1	17	58.9	16	69.2	21	57.9

NOTE: This summary includes 1987 AgriPro data and University/AgriPro Data from 1989.

SPRING WHEAT TRIAL SUMMARIES

OVER LOCATIONS-OVER YEARS

VARIETY OR LINE: BERGEN VERSUS GRANDIN

State	YIELD OVER YEARS bu/a Bergen	bu/a Grand	# Loc
MN	50.2	47.5	11
ND	42.4	42.4	10
SD	23.5	22.5	4
MT	9.6	11.2	2

State	TEST WT. OVER YEARS lbs/bu Bergen	lbs/bu Grand	# Loc
MN	58.9	60.1	11
ND	58.9	59.3	10
SD	56.8	58.0	4
MT	57.6	59.5	2

OVER LOCATION/YEARS

VARIETY	# Loc	Yield	# Loc	Ave TW	# Loc	Ave Ht cm	# Loc	Ave Hd days
Bergen	27	40.3	27	58.5	25	59.9	27	54.9
Grandin	27	39.2	27	59.4	25	68.2	27	53.4

NOTE: This summary includes AgriPro and University Data from 1988 and 1989.

SPRING WHEAT TRIAL SUMMARIES
OVER LOCATIONS-OVER YEARS

VARIETY OR LINE: BERGEN VERSUS STOA

State	YIELD OVER YEARS bu/a Bergen	bu/a Stoa	# Loc
MN	49.0	49.9	14
MT	14.6	16.3	3
ND	41.4	41.8	15
SD	29.9	31.5	8

State	TEST WT. OVER YEARS lbs/bu Bergen	lbs/bu Stoa	# Loc
MN	58.6	59.5	14
MT	55.2	56.5	3
ND	58.7	58.7	15
SD	57.2	58.8	8

OVER LOCATION/YEARS

VARIETY	# Loc	Yield	# Loc	Ave TW	# Loc	Ave Ht cm	# Loc	Ave Hd days
BERGEN	40	39.7	40	58.1	38	62.3	40	55.5
STOA	40	40.7	40	58.8	38	76.2	40	55.4

NOTE: This summary includes AgriPro and University Data from 1988 and 1989.

SPRING WHEAT TRIAL SUMMARIES
OVER LOCATIONS-OVER YEARS

VARIETY OR LINE: BERGEN VERSUS MINNPRO

	YIELD OVER YEARS				TEST WT. OVER YEARS			
State	bu/a Bergen	bu/a Minpro	# Loc		State	lbs/bu Bergen	lbs/bu Minpro	# Loc
MN	50.2	48.5	11		MN	58.9	57.8	11
MT	9.6	10.2	2		MT	57.6	54.2	2
ND	42.4	38.8	10		ND	58.9	56.6	10
SD	23.5	20.1	4		SD	56.8	54.3	4

OVER LOCATION/YEARS

VARIETY	# Loc	Yield	# Loc	Ave TW	# Loc	Ave Ht cm	# Loc	Ave Hd days
BERGEN	27	40.3	27	58.5	25	59.9	27	54.9
MINNPRO	27	37.8	27	56.6	25	63.8	27	55.4

NOTE: This summary includes AgriPro and University Data from 1988 and 1989.

SPRING WHEAT TRIAL SUMMARIES
OVER LOCATIONS-OVER YEARS

VARIETY OR LINE: BERGEN VERSUS BUTTE 86

	YIELD OVER YEARS				TEST WT. OVER YEARS			
	bu/a	bu/a	#		lbs/bu	lbs/bu	#
State	Bergen	Butte	Loc	State	Bergen	Butte	Loc
MN	49.0	47.5	14	MN	58.6	60.2	14
MT	14.6	15.3	3	MT	55.2	56.5	3
ND	41.4	38.2	15	ND	58.7	59.6	15
SD	29.9	30.5	8	SD	57.2	59.8	8

OVER LOCATION/YEARS

VARIETY	# Loc	Yield	# Loc	Ave TW	# Loc	Ave Ht cm	# Loc	Ave Hd days
BERGEN	40	39.7	40	58.1	38	62.3	40	55.5
BUTTE 86	40	38.2	40	59.6	38	71.5	40	52.7

NOTE: This summary includes AgriPro and University Data from 1988 and 1989.

SPRING WHEAT TRIAL SUMMARIES
OVER LOCATIONS–OVER YEARS

VARIETY OR LINE: BERGEN VERSUS VANCE

State	YIELD OVER YEARS bu/a Bergen	bu/a Vance	# Loc
MN	50.2	48.3	11
MT	9.6	12.0	2
ND	42.4	41.1	10
SD	23.5	20.6	4

State	TEST WT. OVER YEARS lbs/bu Bergen	lbs/bu Vance	# Loc
MN	58.9	58.4	11
MT	57.6	57.8	2
ND	58.9	58.5	10
SD	56.8	55.9	4

OVER LOCATION/YEARS

VARIETY	# Loc	Yield	# Loc	Ave TW	# Loc	Ave Ht cm	# Loc	Ave Hd days
BERGEN	27	40.3	27	58.5	25	59.9	27	54.9
VANCE	27	38.8	27	58.0	25	62.7	27	56.4

NOTE: This summary includes AgriPro and University Data from 1988 and 1989.

SPRING WHEAT TRIAL SUMMARIES

OVER LOCATIONS-OVER YEARS

VARIETY OR LINE: BERGEN VERSUS WHEATON

State	YIELD OVER YEARS bu/a Bergen	bu/a Wheat	# Loc
MN	58.1	59.7	11
ND	70.0	65.9	4
SD	40.3	41.2	1

State	TEST WT. OVER YEARS lbs/bu Bergen	lbs/bu Wheat	# Loc
MN	59.0	58.7	9
ND	62.4	60.7	2
SD	57.7	57.9	1

OVER LOCATION/YEARS

VARIETY	# Loc	Yield	# Loc	Ave TW	# Loc	Ave Ht cm	# Loc	Ave Hd days
Bergen	16	60.0	12	59.4	11	70.4	16	55.4
Wheaton	16	60.1	12	59.0	11	70.4	16	55.7

NOTE: This summary includes AgriPro and University Data from 1987 and 1989.

AGRIPRO DATA FROM RED RIVER VALLEY OVER-YEAR SUMMARY OF AGRIPRO AND OTHER SELECTED VARIETIES

Variety	Yield - bu/a 85(5)	86(4)	87(5)	89(4)	4-Yr Avg.	% of Wheaton	(17) T. Wt. lbs/bu	(15) Ht. cm	(17) Lodg. 1-9	(19) Head. days	(6) Foliar Disease 1-9	(15) Wheat Prot. %
Nordic	90.6	56.5	72.5	68.2	73.0	102	61.6	83.2	4.4	58.9	3.8	12.6
Bergen*	----	----	72.4	69.0	72.5	101	59.3	78.5	2.1	58.0	3.1	13.5
Wheaton	85.4	57.9	70.6	69.2	71.6	100	58.8	77.6	3.0	58.0	4.3	13.1
Marshall	86.3	58.0	66.3	68.7	70.6	99	59.8	78.7	2.5	59.0	4.3	13.2
Norseman	87.1	54.6	68.1	67.9	70.3	98	58.1	76.0	1.6	59.0	4.2	13.7
Telemark	86.7	58.3	64.5	65.7	69.6	97	58.1	74.5	1.1	57.5	4.3	14.4
Fjeld	85.3	54.2	68.2	64.8	69.1	97	59.7	78.6	1.8	56.7	6.1	13.3
Era	84.0	52.2	63.4	68.6	67.8	95	59.5	79.0	4.9	60.2	3.9	12.7
Stoa	77.9	53.9	66.5	65.4	66.6	93	59.8	95.4	3.5	57.0	4.7	14.8
Celtic	80.3	53.2	63.6	63.8	66.0	92	60.1	83.0	3.1	57.2	3.4	14.4
2369	76.9	55.6	61.5	62.2	64.6	90	59.7	79.1	3.2	57.9	4.7	13.8
Len	77.5	52.3	63.0	62.4	64.5	90	60.1	82.4	2.3	58.0	4.6	14.7
Butte 86*	----	----	62.1	59.3	63.2	88	60.5	84.0	3.0	55.5	4.7	14.8
2385*	____	____	57.0	54.5	57.9	80	59.1	83.0	1.7	56.0	4.5	14.7

( ) - indicates number of locations
* - adjusted for averages